## BATTERY CALCULATIONS
## FAP-001-75

| ITEM | DESCRIPTION | QTY | STANDBY CURRENT PER ITEM (AMPS) | TOTAL STANDBY CURRENT PER ITEM | ALARM CURRENT PER ITEM (AMPS) | TOTAL ALARM CURRENT PER ITEM |
|---|---|---|---|---|---|---|
| CP-35 | FACP w/2ZN'S + AUD | 1 | 0.1750 | 0.1750 | 0.5010 | 0.5010 |
| PS-35 | POWER SUPPLY | 2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| BC-35 | BATTERY CHARGER | 1 | 0.0450 | 0.0450 | 0.0300 | 0.0300 |
| AA-30U | CLASS B BELL MODULE | - | 0.0065 | 0.0000 | 0.0400 | 0.0000 |
| PM-32 | MATRIX MODULE | 1 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| RM-30U | RELEASE MODULE | - | 0.0050 | 0.0000 | 1.5000 | 0.0000 |
| SM-30 | SWITCH MODULE | 1 | 0.0000 | 0.0000 | 0.0450 | 0.0450 |
| SR-32 | 6 RELAY MODULE | - | 0.0000 | 0.0000 | 0.0450 | 0.0000 |
| SR-35 | 8 RELAY MODULE | 1 | 0.0000 | 0.0000 | 0.0210 | 0.0210 |
| TC-30U | BATTERY TRANSFER | - | 0.0000 | 0.0000 | 0.0600 | 0.0000 |
| TL-30U | TIME LIMIT | - | 0.0300 | 0.0000 | 0.0150 | 0.0000 |
| ZN-34US | SUPERVISORY MODULE | 2 | 0.0100 | 0.0100 | 0.1100 | 0.1100 |
| ZU-35 | ZONE MODULE | 3 | 0.0090 | 0.0270 | 0.1100 | 0.3300 |
| ZU-35DS | ZONE MODULE/SD's | 7 | 0.0090 | 0.0630 | 0.1100 | 0.7700 |
| SMOKE | SMOKE DETECTOR | 38 | 0.0001 | 0.0038 | 0.0010 | 0.0380 |
| MOI | TRANSMITTER | 1 | 0.1200 | 0.1200 | 0.1750 | 0.1750 |
| MID | INPUT BOARD | 1 | 0.0020 | 0.0020 | 0.0000 | 0.0000 |
| PS-5A | POWER SUPPLY | 1 | 0.0380 | 0.0380 | 0.0000 | 0.0000 |
| TOTAL NOTIFICATION APPLIANCES CURRENT | | | | | | 0.4000 |
| | TOTAL SYSTEM CURRENT | | STANDBY | 0.4558 | ALARM | 2.6800 |

MIN. BATTERY CAPACITY = {(TOT. STANDBY CURRENT X STANDBY TIME) +
             (TOT. ALARM CURRENT X ALARM TIME)} X 1.25

MIN. BATTERY CAPACITY = {(0.4558 A X 24 HR) + (2.68 A X 0.083 HR)} X 1.25

MIN. BATTERY CAPACITY = {10.9392 AHr + 0.2224 AHr} X 1.25 = 13.9521 AHr

## NOTIFICATION APPLIANCE CIRCUIT
## VOLTAGE DROP & POWER REQUIREMENTS

| CKT AV1: 75 COMPLEX DESCRIPTION | QTY | CURRENT PER ITEM (AMPS) | TOTAL CURRENT PER ITEM |
|---|---|---|---|
| WHEELOCK STROBE 15 cd | - | 0.5010 | 0.0000 |
| WHEELOCK HORN/STROBE 15cd | - | 0.0000 | 0.0000 |
| WHEELOCK STROBE 30 cd | - | 0.0300 | 0.0000 |
| WHEELOCK HORN/STROBE 30 cd | - | 0.0450 | 0.0000 |
| WHEELOCK STROBE 75 cd | - | 0.165 | 0.0000 |
| WHEELOCK HORN/STROBE 75 cd | - | 0.1100 | 0.0000 |
| WHEELOCK STROBE 110 cd | - | 0.1100 | 0.0000 |
| WHEELOCK HORN/STROBE 110 cd | - | 0.1750 | 0.0000 |
| WHEELOCK HORN | - | 0.0000 | 0.0000 |
| AUTOCALL BELL | 8 | 0.0500 | 0.4000 |
| AUTOCALL BELL/STROBE 75 cd | - | 0.2150 | 0.0000 |
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| | | | |
| TOTAL NOTIFICATION APPLIANCES CURRENT | | | 0.4000 |

VOLTAGE DROP (VD) CALCULATIONS

VD = {(I) (D) (21.6)}/CM
WHERE: I = CIRCUIT CURRENT
      D = CONDUCTOR LENGTH (FT) ONE WAY
      21.6 = CONSTANT
      CM = WIRE CROSS-SECTIONAL AREA (CIRCULAR MILS)
VD = {(0.4A) (805FT) (21.64)}/4110 = 1.692V

%VD = {1.692V / 24V} X 100 = 7.051%

REMAINING VOLTS = 22.308

| WIRE SIZE | CIRCULAR MILS |
|---|---|
| 12AWG | 6530 |
| 14AWG | 4110 |
| 16AWG | 2580 |
| 18AWG | 1620 |
| 20AWG | 1020 |

## FIRE ALARM SYSTEM FUNCTION CHART

| SYSTEM EVENT | RESPONSE | ANNUNCIATE AT FACU | FIRE SIGNAL TO RECEIVER | TROUBLE SIGNAL TO LBNL RECEIVER | SUPERVISORY SIGNAL TO LBNL RECEIVER | OPERATE 75 COMPLEX NOTIFICATION DEVICES | 75A ROTATING BEACON | 75C ROTATING BEACON | 75F ROTATING BEACON | 75F DRY CHEM DUMP |
|---|---|---|---|---|---|---|---|---|---|---|
| 75,75A,B75B,75C FIRE CALL BOXES | | ● | ● | | | ● | | | | |
| B75B HEAT DETECTORS | | ● | ● | | | ● | | | | |
| 75 SMOKE DETECTORS | | ● | ● | | | ● | | | | |
| 75 DUCT SMOKE DETECTORS | | ● | ● | | | ● | | | | |
| 75,B75B FIRE SPRINKLER WATERFLOW SWITCHES | | ● | ● | | | ● | | | | |
| 75A FIRE SPRINKLER WATERFLOW SWITCH | | ● | ● | | | ● | ● | | | |
| 75C FIRE SPRINKLER WATERFLOW SWITCH | | ● | ● | | | ● | | ● | | |
| 75F,75G FIRE SPRINKLER WATERFLOW SWITCHES | | ● | ● | | | ● | | | ● | ● |
| 75,B75B FIRE SPRINKLER VALVE SUPERVISORY SWITCHES | | ● | | | ● | | | | | |
| 75A FIRE SPRINKLER VALVE SUPERVISORY SWITCHES | | ● | | | ● | | | | | |
| 75C FIRE SPRINKLER VALVE SUPERVISORY SWITCHES | | ● | | | ● | | | | | |
| 75F,75G FIRE SPRINKLER VALVE SUPERVISORY SWITCHES | | ● | | | ● | | | | | |
| AC POWER FAILURE | | ● | | ● | | | | | | |
| SYSTEM FAULT | | ● | | ● | | | | | | |